

## **REMARKS**

### **Status of claims**

Claims 1-5, 8-13, 15, 16, 18, 20-25, 27-30, 35, 39-43, 48, 100, 106 and 164-168 are pending in the present application.

### **Rejections Under 35 U.S.C. §103(a)**

Claims 1-4, 8, 9, 18, 20-25, 29, 30 and 48 were rejected under 35 U.S.C. §103(a) as being unpatentable over Mian et al. (USP 6,319,469) in view of Kellogg et al. (USP 6,143,248). The Office Action contends that it would have been obvious to combine the tapered valve of Kellogg with the system of Mian. Applicants respectfully traverse the rejection.

Establishing *prima facie* obviousness requires a showing that each claim element is taught or suggested by the prior art. *See In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Specifically, establishing *prima facie* obviousness requires a showing that some combination of objective teachings in the art and/or knowledge available to one of skill in the art would have lead that individual to arrive at the claimed invention. *See In re Fine*, 5 USPQ2d 1596,1598 (Fed. Cir. 1988). Moreover, establishing *prima facie* obviousness requires not only a showing that such a combination of prior art teachings is possible, but also that the teachings would have 1) motivated the skilled artisan to make the combination to arrive at the claimed invention, and 2) suggested to the skilled artisan a reasonable likelihood of success in making and using the claimed invention. *See In re Dow Chem. Co.*, 837 F.2d 469, 473 (Fed. Cir. 1988).

Absent a showing of such motivation and suggestion, *prima facie* obviousness is not established. See *Fine*, 5 USPQ2d at 1598.

The present claims are drawn to microfluidic devices having multiple tapered fluid channels, where each of the tapered channels is in fluid communication with multiple reaction cells. The Final Office Action dated December 30, 2004, and the Advisory Action dated May 20, 2005 recognize that Mian fails to disclose microfluidic networks having multiple tapered fluid channels, where each of the tapered channels is in fluid communication with multiple reaction cells. In fact, Mian does not disclose tapered fluid channels at all.

Combining Mian and Kellogg would not produce the claimed invention because Kellogg discloses tapered fluid channels that are in fluid communication with *only one* reaction cell. See Kellogg at col. 30, lines 22-27 and Fig. 10. Kellogg does not disclose tapered fluid channels that are in fluid communication with *multiple* reaction cells. Thus, if one were to combine a Kellogg [tapered fluid channel-reaction cell] construct with a Mian microfluidic network, one would arrive at a microchannel network where each tapered channel is in fluid communication with *only one* reaction cell; not *multiple* reaction cells as the present claims require. Such a [one-tapered-channel-to-*one*-reaction-cell] network is fundamentally different from the claimed microfluidic devices, which include tapered fluid channels that communicate with multiple reaction cells (i.e., a [one-tapered-channel-to-*multiple*-reaction-cells] network).

Further, one of ordinary skill in the art would not be motivated to modify the microfluidic network of Mian using the tapered channels disclosed by Kellogg in a [one-tapered-channel-to-*multiple*-reaction-cells] configuration as presently claimed. Such a configuration would not function as intended by Mian. The Mian microfluidic network is specifically designed to

perform reactions by stepwise addition of reagents from reservoirs to reaction wells positioned as a reaction cell path along a central fluid channel. *See* Mian, Fig. 1A. Turning a Mian [one-tapered-channel-to-*one*-reaction-cell] network into a [one-tapered-channel-to-*multiple*-reaction-cells] network would either (1) channel reagent from a reagent reservoir to multiple reaction wells along the series of reaction wells, or (2) channel the contents of a reaction well to other reaction wells along the reaction cell path (e.g., if the central fluid channel was configured to allow communication with multiple reaction wells). This would totally defeat the intended purpose of Mian's stepwise reaction network. According to M.P.E.P. 2143.01, if, as in the present case, a modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).


Thus, a *prima facie* case of obviousness based upon Mian and Kellogg cannot properly be maintained, and Applicants therefore respectfully request withdrawal of the rejection under 35 U.S.C. §103(a).

The remaining claims were rejected over the Mian/Kellogg combination, further in view of other secondary references (Zanzucchi, US 6,319,469; Demers, US 5,840,256; Stabile, US 5,872,623; Sheppard, 6,143,247). None of these references cure the defects in the teachings of Mian and Kellogg. Thus, reconsideration and withdrawal of all rejections under 35 U.S.C. §103(a) based on Mian and Kellogg are respectfully requested.

### **Conclusion**

In view of the foregoing remarks, Applicants respectfully submit that the present application and all claims are in condition for immediate allowance and early notice to such effect is earnestly solicited. If, in the opinion of the Examiner, a phone call may help expedite prosecution of this application, the Examiner is invited to contact the undersigned representative at (512) 542-8446. Please date stamp and return the enclosed postcard evidencing receipt of these materials.

Respectfully submitted,



Timothy S. Corder  
Registration. No. 38,414  
Agent for Applicants

VINSON & ELKINS L.L.P.  
First City Tower  
1001 Fannin Street  
Suite 2300  
Houston, Texas 77002-6760  
Ph: 512.542.8446  
Fax 512.236.3377

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